# GEOLOGICAL SURVEY OF KENNY-ACKERMAN SITE THE OHIO STATE UNIVERSITY RESEARCH PARK

A Thesis

Presented in Partial Fulfillment of the Requirements for the Degree Bachelor of Science

By

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The Ohio State University

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Approved by

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## INTRODUCTION

The objective of this study is to provide subsurface stratigraphy of the Kenny-Ackerman site to be used in the development of The Ohio State University Research Park. Data were obtained from water wells within Franklin County and four boreholes augered at the site in August 1984.

Subsurface stratigraphy and other data on geological materials is used by engineers, land use planners, architects and developers to determine whether a site is suitable for development. If so, the placement of buildings, utilities, woods and drainage modifications are planned with this information. Engineering tests conducted on samples obtained during a preliminary site survey are used to make preliminary plans for building size and foundation requirements.

Hydrologic information from a preliminary site survey also is important in planning drainage and design of the structures.

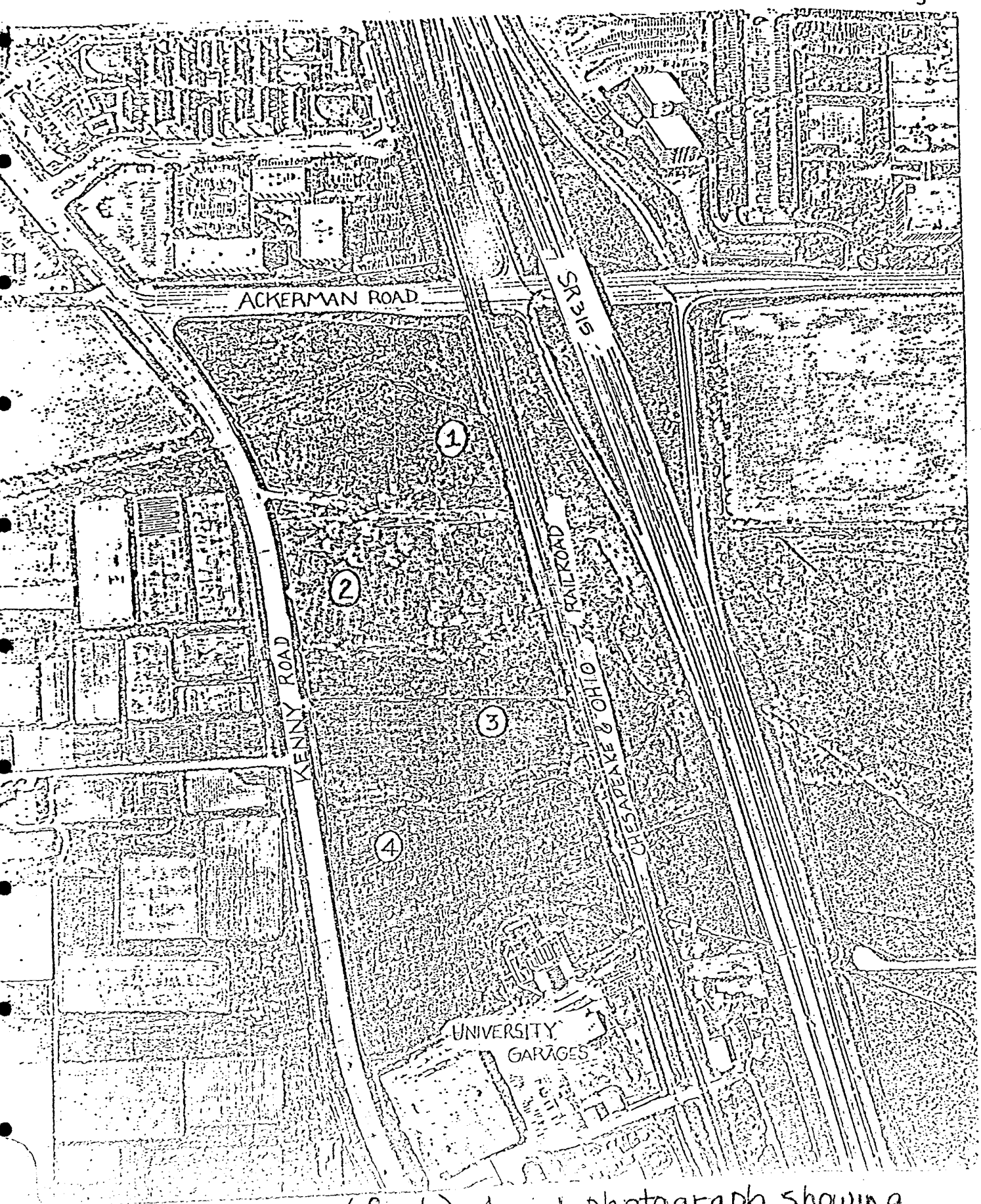
## PHYSIOGRAPHY

Taking the shape of a north-south trending rectangle, this area is bounded on the north by Ackerman Road, the west by Kenny Road, the south by the Ohio State University Garages and the east by the Chesapeake and Ohio Railroad tracks. The Olentangy River lies 1 mile to the east. The site measures

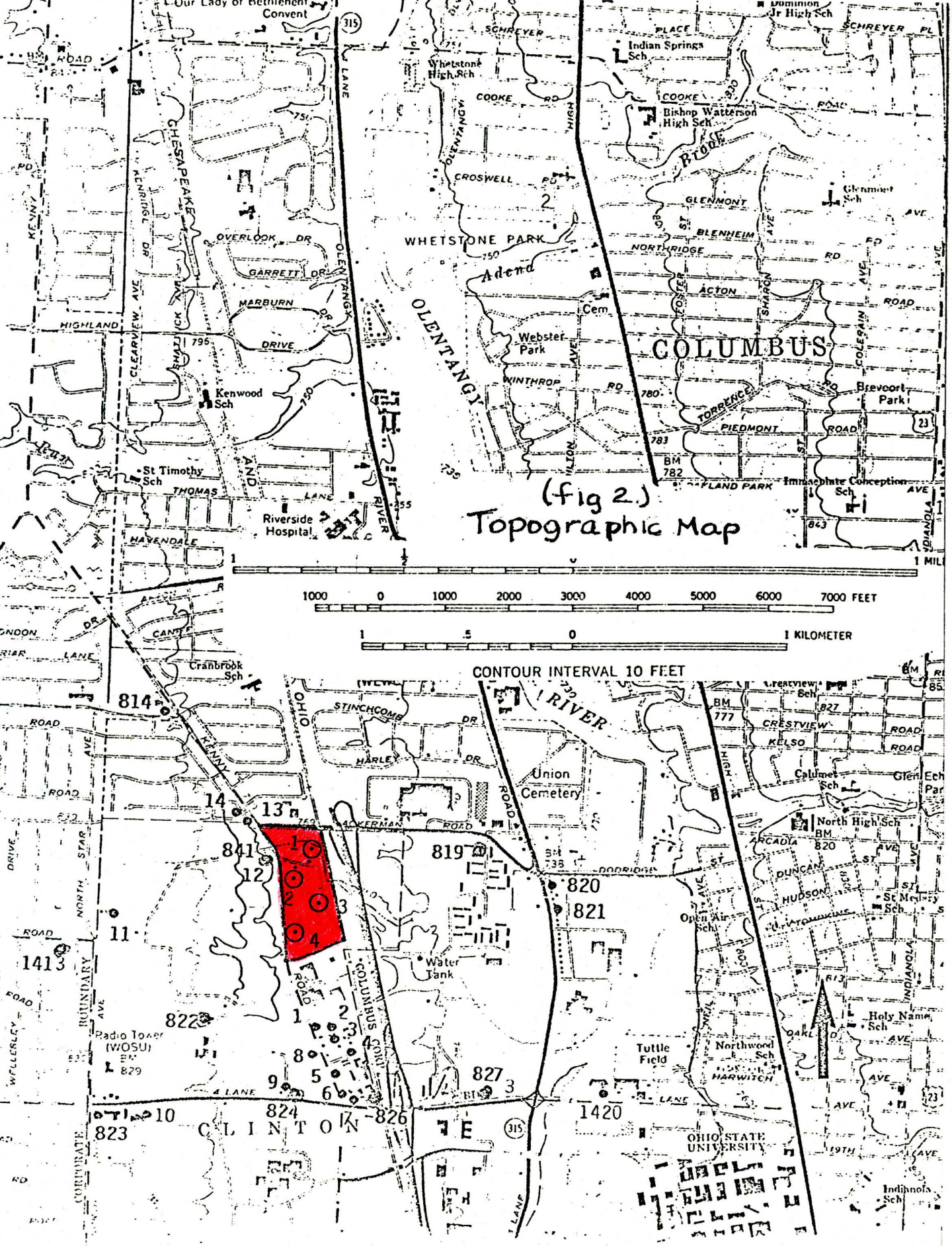
approximately 800 feet east-west and 1300 feet north-south for approximately 104,00 square feet or 2.7 acres. This area lies on the outskirts of the corporation limit within Western Clinton township in Franklin County (fig. 1).

The maximum difference in relief at the site is 15 feet. The western half lies at an elevation of 770 feet and slopes gently to an elevation of 755 feet in the east. Drainage on the site flows to the east with an open ditch in the extreme north and a lesser surficial drainage gully flowing across the southern section (fig. 2).

Illinoian and Wisconsinian glaciations have left deposits of glacial drift on the underlying bedrock topography. A cross sectional view of Franklin County through the site indicates the underlying bedrock to be either the Delaware Limestone or the Columbus Limestone of Devonian Age (fig. 3). The Delaware Limestone, a thinly bedded blue-gray limestone of approximately 32 feet in thickness overlies the more massive purer Columbus Limestone, approximately 105 feet in thickness (Schmidt, 1958). These limestones dip to the east and underlie the younger Devonian Ohio Shale. The contact between the limestone in the west and the more easily eroded shales in the east lies to the east of the Olentangy River.




(fig 1) Aerial photograph showing borehole locations.


Our Lady of Bethlehem Convent
Whetstone High Sch
Indian Springs Sch
Bishop Watterson High Sch
Dominion Jr High Sch
WHETSTONE PARK
Adena
Cem.
Webster Park
COLUMBUS
Kenwood Sch
St Timothy Sch
Riverside Hospital
Glenmont Sch
Brevoort Park
Immaculate Conception Sch
OLENTANGY
CHESAPEAKE
CLEARVIEW AVE
KENNY
HIGHLAND
OVERLOOK DR
GARRETT DR
MARBURN DR
DRIVE
COOKE RD
CROSWELL RD
SCHREYER PL
PLACE
BROOKE
GLENMONT
BLENHEIM
NORTHRIDGE RD
ACTON
ROAD
WINTHROP RD
PIEDMONT ROAD
HAVENDALE
THOMAS LANE
RIVER
BM 782
(fig 2.)
Topographic Map
1 MILE
1000 0 1000 2000 3000 4000 5000 6000 7000 FEET
1 .5 0 1 KILOMETER
CONTOUR INTERVAL 10 FEET
Cranbrook Sch
OHIO
STINCHCOMB DR
HARLEY DR
Union Cemetery
KENNY AVE
ROAD
KOKERMAN ROAD
DODRIDGE
RIVER
Creatview Sch
CRESTVIEW ROAD
KELSO ROAD
Calumet Sch
North High Sch
ARCADIA AVE
DUNCAN ST
HUDSON ST
Open Air Sch
St Mary Sch
Holy Name Sch
Water Tank
COLUMBUS CONN
Radio Tower (WOSU)
Tuttle Field
Northwood Sch
HARWICH
OHIO STATE UNIVERSITY
Indianola Sch
NORTH STAR BOUNDARY
CORPORATE
WELLESLEY
4 LANE
CLINTON
814
841
819
820
821
822
824
826
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3
2
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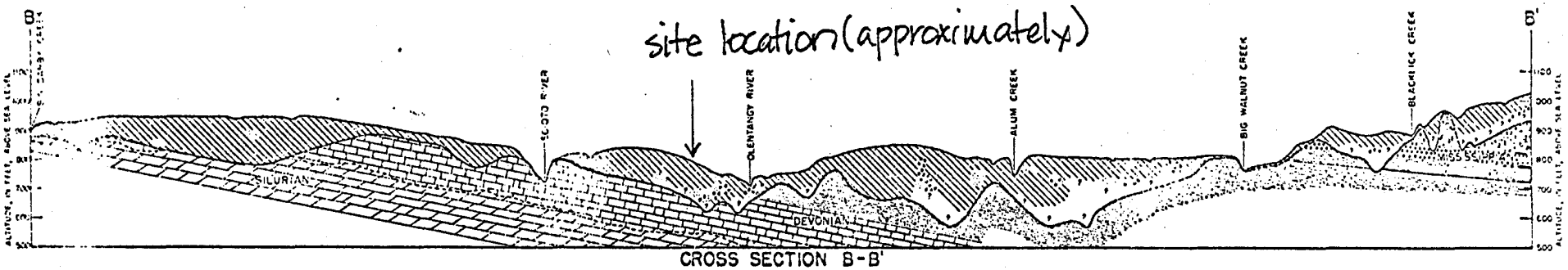
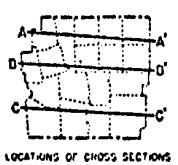
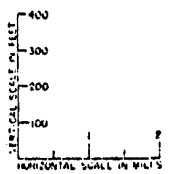



TILL OR CLAY
SAND
SAND AND GRAVEL
INTERBEDDED AND INTERLENSING SAND, GRAVEL, AND CLAY
LIMESTONE
DOLOMITE
SANDSTONE
SHALE
ALTERNATING LAYERS OF SANDSTONE AND SHALE

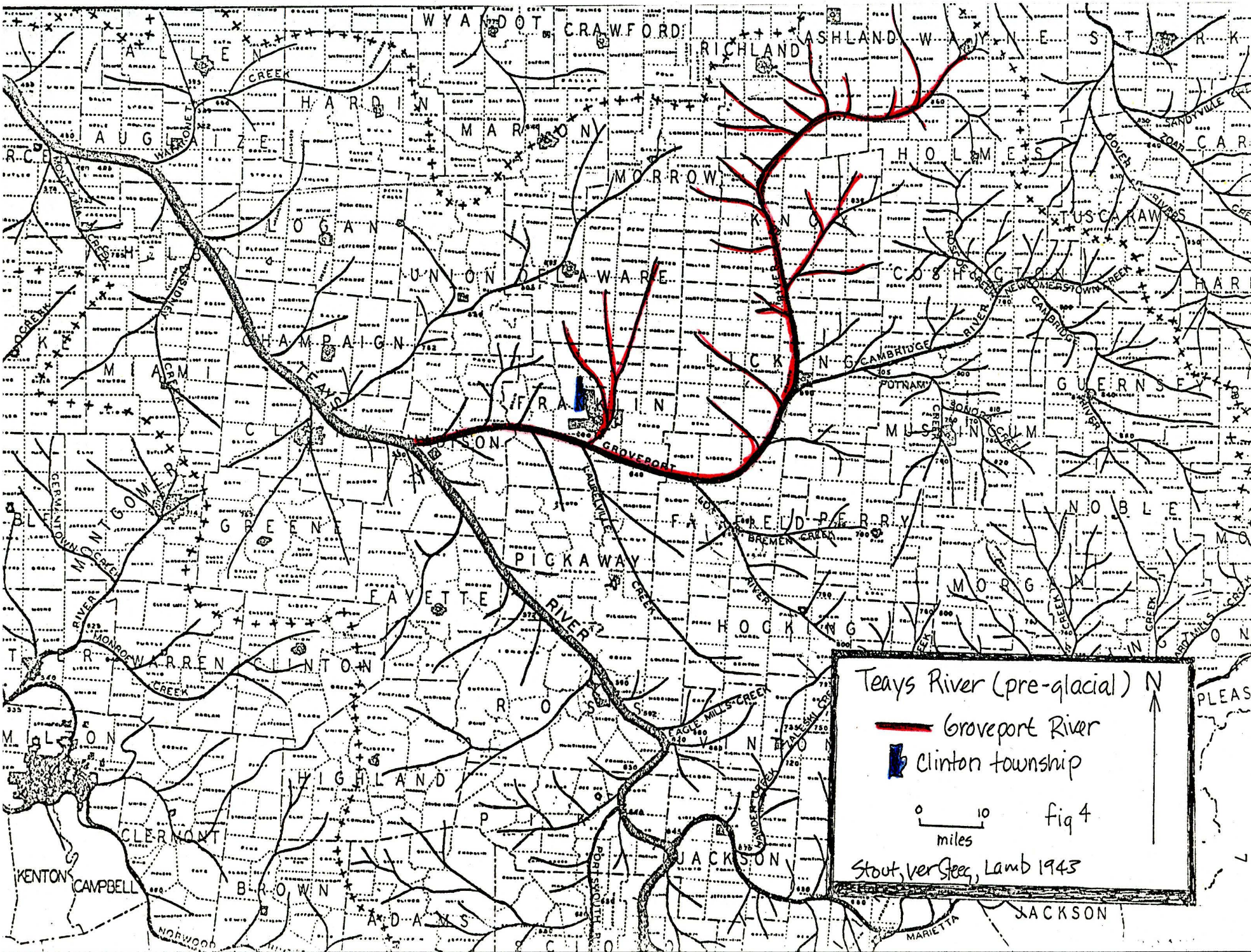


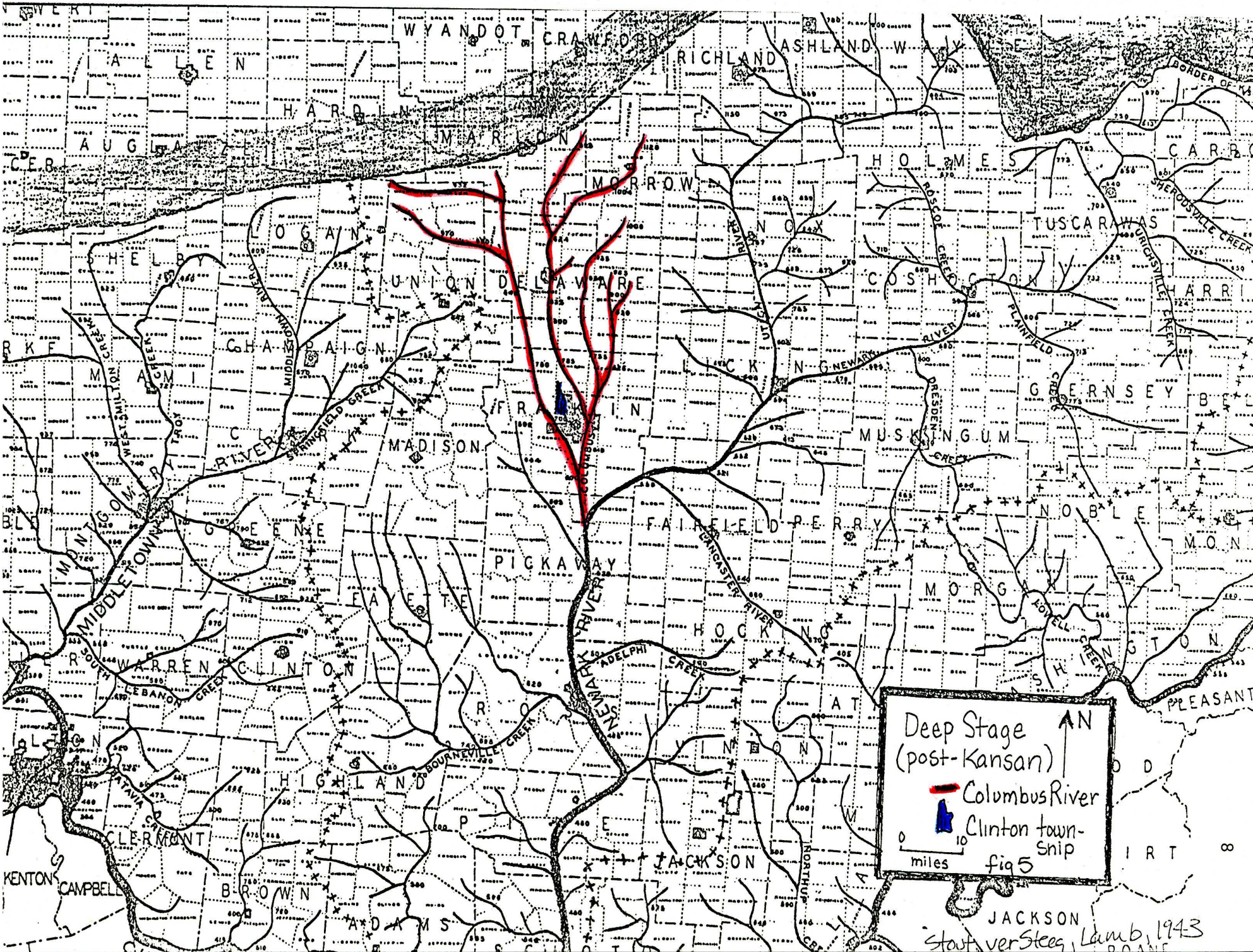

(fig 3.) Generalized cross section showing geology of Franklin County, Ohio. (from Schmidt 1958)

## GLACIAL HISTORY

The site lies upon the glacial deposits in a former tributary of the Groveport River. The Groveport River flowed westward and joined the northwestward flowing Teays River, the major river system that drained Ohio in preglacial time. The Groveport gathered its headwaters in Wayne County, flowed westward into Richland County, then due south into northwest Fairfield County where it began its westward trek across Franklin County (fig. 4). It joined the Teays River in neighboring Madison County. The largest tributary of the Teays River, within the state, the Groveport River had a length of 150 miles (Stout, et al., 1943).

The Deep Stage Drainage System commenced with the encroachment of the Kansan Ice sheet and the blockage of the Teays River course to the northwest. This ice margin caused waters of the Teays River to seek new outlets to the south rather than in the north. Stream courses were reversed or remained the same in the Old Teays tributaries. The Groveport River followed the same course from Wayne County to Fairfield County but then flowed southwestward to join the Newark River. The Groveport River was renamed the Utica River during this drainage system (fig. 5). A tributary of the Newark River, the Columbus River flowed south, draining much of Franklin, Delaware, Morrow and northern Union Counties. It occupied many of the channels previously


Teays River (pre-glacial)
Groveport River
Clinton township
0 10
miles
fig 4
Stout, Ver Steeg, Lamb 1943
N
WYANDOT
CRAWFORD
RICHLAND
ASHLAND
WAYNE
ALLEN
HARDIN
MARION
MORROW
KNOX
HOLMES
TUSCARAWAS
AUGLAIZE
LOGAN
UNION
DELAWARE
COSHOCTON
CHAMPAIGN
FRANKLIN
GUERNSEY
MUSKINGUM
NOBLE
MIAMI
CLARK
MADISON
FAYETTE
PICKAWAY
FAIRFIELD
PERRY
MORGAN
GREENE
MONTGOMERY
WARREN
CLINTON
ROSS
HOCKING
PIKE
HIGHLAND
CLERMONT
BROWN
ADAMS
JACKSON
KENTON
CAMPBELL
MARIETTA
PLEASA
GROVEPORT
PUTNAM
CAMBRIDGE
BREMEN
LAUREL VILLE
EAGLE MILLS
PORTSMOUTH
MIAMI RIVER
SCIOTO RIVER
HOCKING RIVER
MUSKINGUM RIVER
WALHONDING RIVER
TUSCARAWAS RIVER
CREEK
RIVER


Deep Stage
(post-Kansan)
Columbus River
Clinton township
0 10
miles
fig 5
N
Stout, Ver Steeg, Lamb, 1943

occupied by the Groveport. Due to regional uplift, the streams of the Deep Stage incised the bedrock to an erosional surface well below that of the Teays draining system. The Deep Stage drainage system existed until the advancement of the Illinoian ice (Stout, et al., 1943).

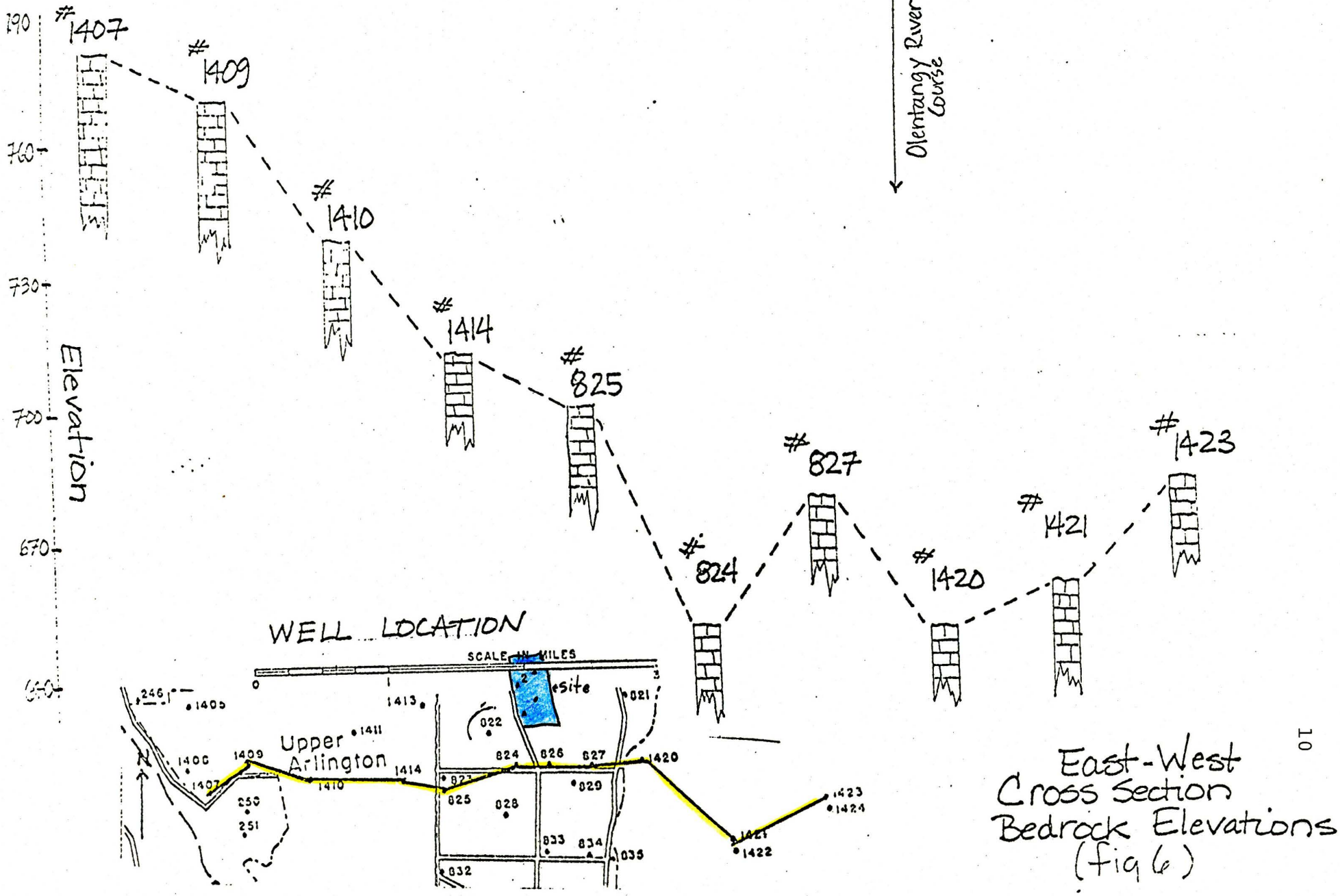
The Illinoian ice covered a greater expanse of Ohio than the subsequent Wisconsinian glaciations. A thick mantle of drift covered the underlying Teays and Deep Stage drainage systems.

The Ackerman site lies on the confluence of two tributaries of the Groveport River (Goldthwait, 1958). Bedrock elevations approximate 650 feet with 65-125 feet of glacial drift accumulating within the former river valley.

## DESCRIPTION OF EAST-WEST CROSS SECTION

An east-west cross sectional view, taken through 11 water logs, shows the elevations of the underlying limestone bedrock (fig. 6). The lateral extent of this view is 4.5 miles.

Well #827 shows a topographic ridge of limestone at an elevation of 680 feet, surrounded by limestone valleys at elevations of 654 feet (Well #824) and 651 feet (Well #1420). This ridge of limestone may separate two different tributaries of the post Kansan Columbus River or pre-glacial Groveport River. The westernmost valley may be the fluvial valley of the tributary that joins from the northwest,



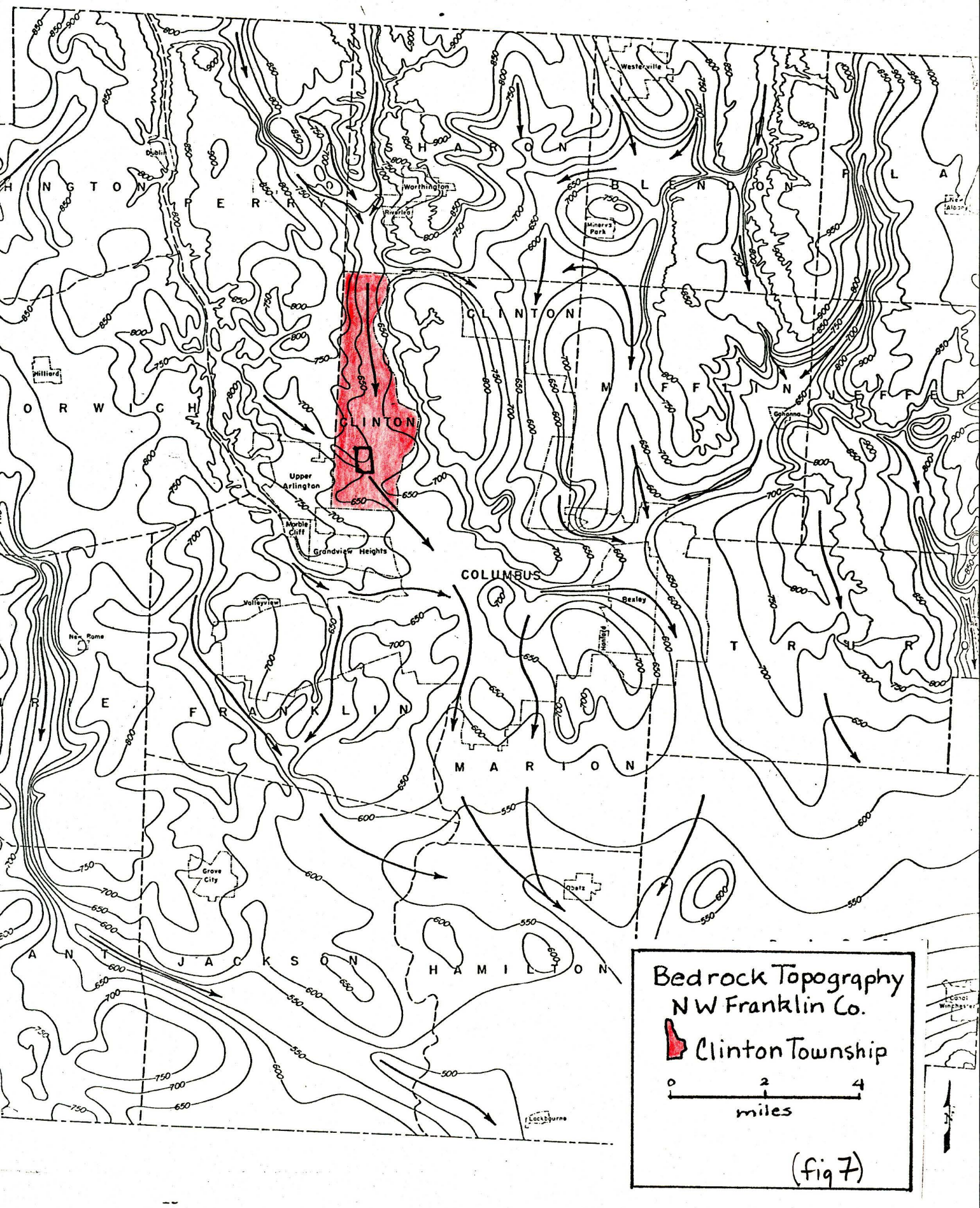

East-West
Cross Section
Bedrock Elevations
(fig 6)

gathering its headwaters in southern Perry township. The eastern valley may represent the higher discharge tributary which gathers its headwaters by the confluence of several lesser tributaries to the north in western Sharon and eastern Perry townships (fig. 7) (Goldthwait, 1958). The confluence of this stream would be expected to be found to the south and form a wider valley at a bedrock topography below the 650 foot level.

The width of the area covered by these two river valleys is 1.12 miles for the western valley and 1.75 mile for the eastern valley.

## STRATIGRAPHY OF THE SURFICIAL DEPOSITS

Four boreholes were made at the Kenny-Ackerman site (fig. 1). Boroholes #2 and #4 were taken at the higher elevations in the west and boreholes #1 and #3 were made in the east. Encountered in all the boreholes were an uppermost soil layer overlying a till, brownish in color in the uppermost oxidized zone, which extended to a depth of approximately 10 feet. The color of this till grades with depth into a gray unoxidized lower portion. Thickness of this till varies from approximately 30 to 50 feet. Underlying this till, in 3 of the 4 wells, a coarse sand and gravel layer was found. The depth at which this sand layer was encountered varied with the thickness of the overlying till. Only one thickness of the sand and gravel unit could be obtained from the four


Bedrock Topography
NW Franklin Co.
Clinton Township
0 2 4
miles
(fig 7)
CLINTON
COLUMBUS
Dublin
Worthington
Westerville
Minerva Park
Hilliard
Upper Arlington
Marble Cliff
Grandview Heights
Bexley
New Rome
Grove City
Obetz
Galloway
Lockbourne
Canal Winchester
FRANKLIN
MARION
HAMILTON
JACKSON
PERRY
SHARON
BLENDON
CLINTON
MIFFLIN
JEFFERSON
ORWICH
TRURO

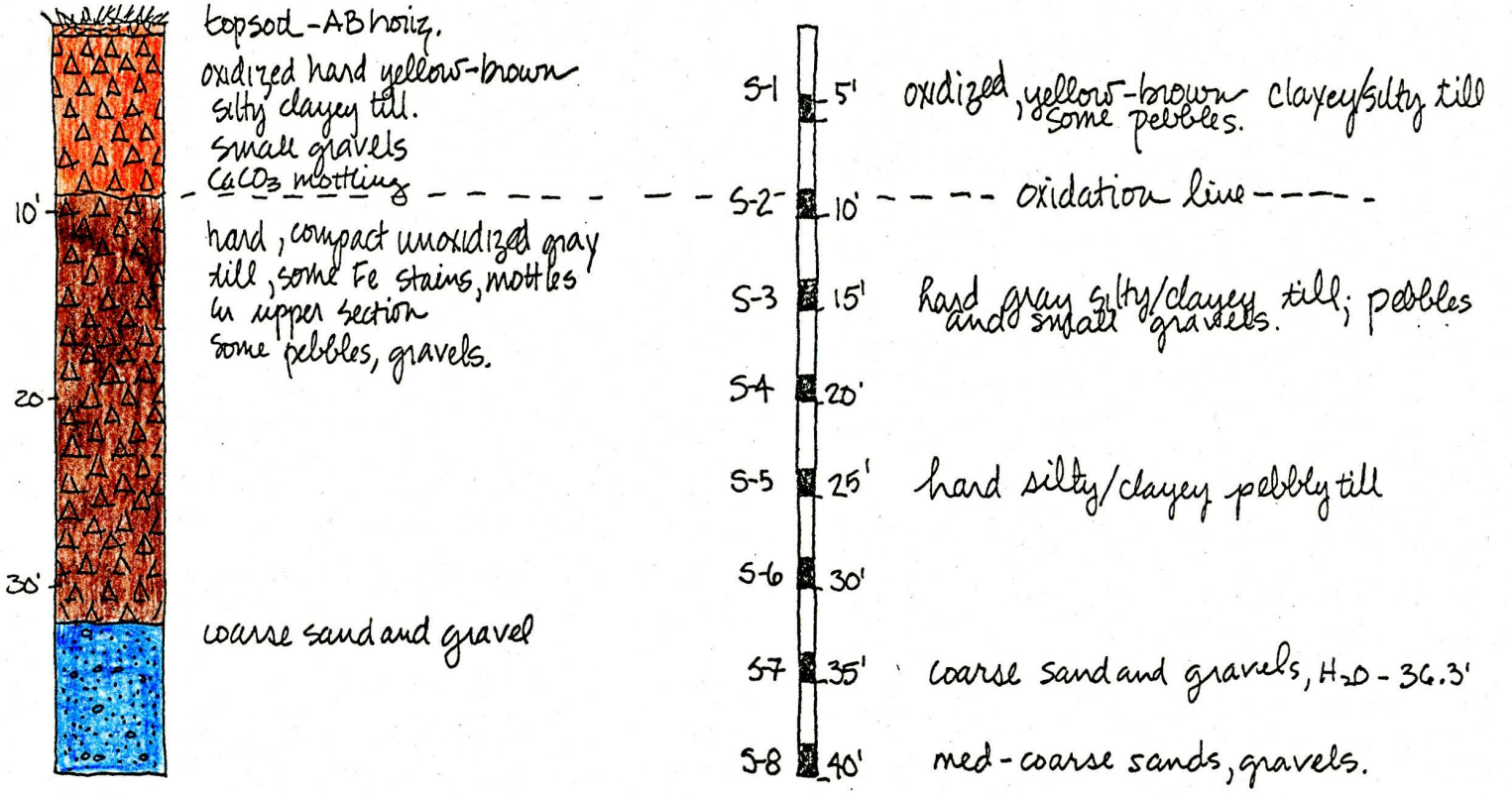
boreholes as only one borehole extended to the depth of the underlying bedrock.

Split-barrel samples, approximately 1.5 feet long were taken from the boreholes at intervals of 5 feet. Analysis of these samples on the basis of pebble and silt content or carbonate proportion would enable one to determine whether one or several tills were present in the underlying section. These tests were not made because of limitations in samples and equipment.

Information from the four boreholes and from the more than 1400 waterwells in Franklin County provides a clearer picture of surficial stratigraphy and bedrock topography. Knowledge of the former preglacial and interglacial river systems and their gradients were obtained from these data.

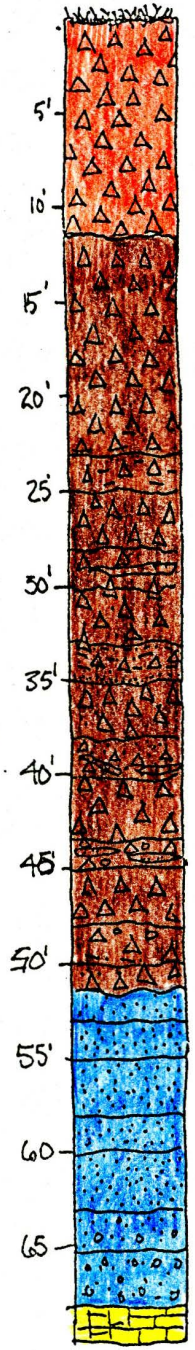
Borehole #1 began at an elevation of 766 feet and extended to a depth of 40 feet (fig. 8). The upper 9 feet were oxidized and consisted of hard yellow-brown till with some sand and pebbles intermixed. Below this oxidized zone the till became more dense and was gray colored, due to the reducing conditions. At a depth of 31 feet, the coarse sand unit was reached and extended to the base of the well at 40 feet.

Borehole #2 was the only well taken to the bedrock surface (fig. 9). The elevation of the borehole began at 769 feet and the well extended to a depth of 68 feet where further drilling was impeded due to the underlying limestone bedrock.




(fig 8) Stratigraphic column - borehole #1

■ sample length 1½'




oxidized, clayey/silty till; dark yellow-brown color few pebbles; $CaCO_3$, Fe stains, mottles.

unoxidized gray silty claytill, some pebbles

lighter gray color (olive tinge) loamy compact till

minor amounts of fine sands - lenses(?)

very hard, compact loamy silt, gray till w/ pebbles. top of core - coarse silt lense sand layer - basal

sandy till; gravel/sand lenses less compact than above till

hard compact sandy loamy pebbly till numerous sand lenses - 2" thick

hard sandy loamy pebbly till

medium - fine grained sands

medium - fine grained sands

coarse - medium grained sands w/ gravels - 2cm size

bedrock

| Samples | | descriptions |
|---|---|---|
| S-1 | 5' | oxidized brown clayey/silty till some pebbles. |
| S-2 | 10' | ---- oxidation line ---- |
| S-3 | 15' | |
| S-4 | 20' | unoxidized gray compact silty/clayey till, some pebbles, gravels. |
| S-5 | 25' | |
| S-6 | 30' | |
| S-7 | 35' | hard, loamy, pebbly till, some fine sand layers |
| S-8 | 40 | less compact sandy loam till w/ sand and gravel lenses |
| S-9 | 45 | hard compact sandy loamy till pebbly sand lenses |
| S-10 | 50 | hard sandy loamy pebbly till |
| S-11 | 55 | med - fine grained sands |
| S-12 | 60 | med - fine grained sands |
| S-13 | 65 | coarse-med grained sands w/ gravels. broken up cobbles, minor sands |
| | 70 | refusal. |

(fig 9.) Stratigraphic column borehole #2

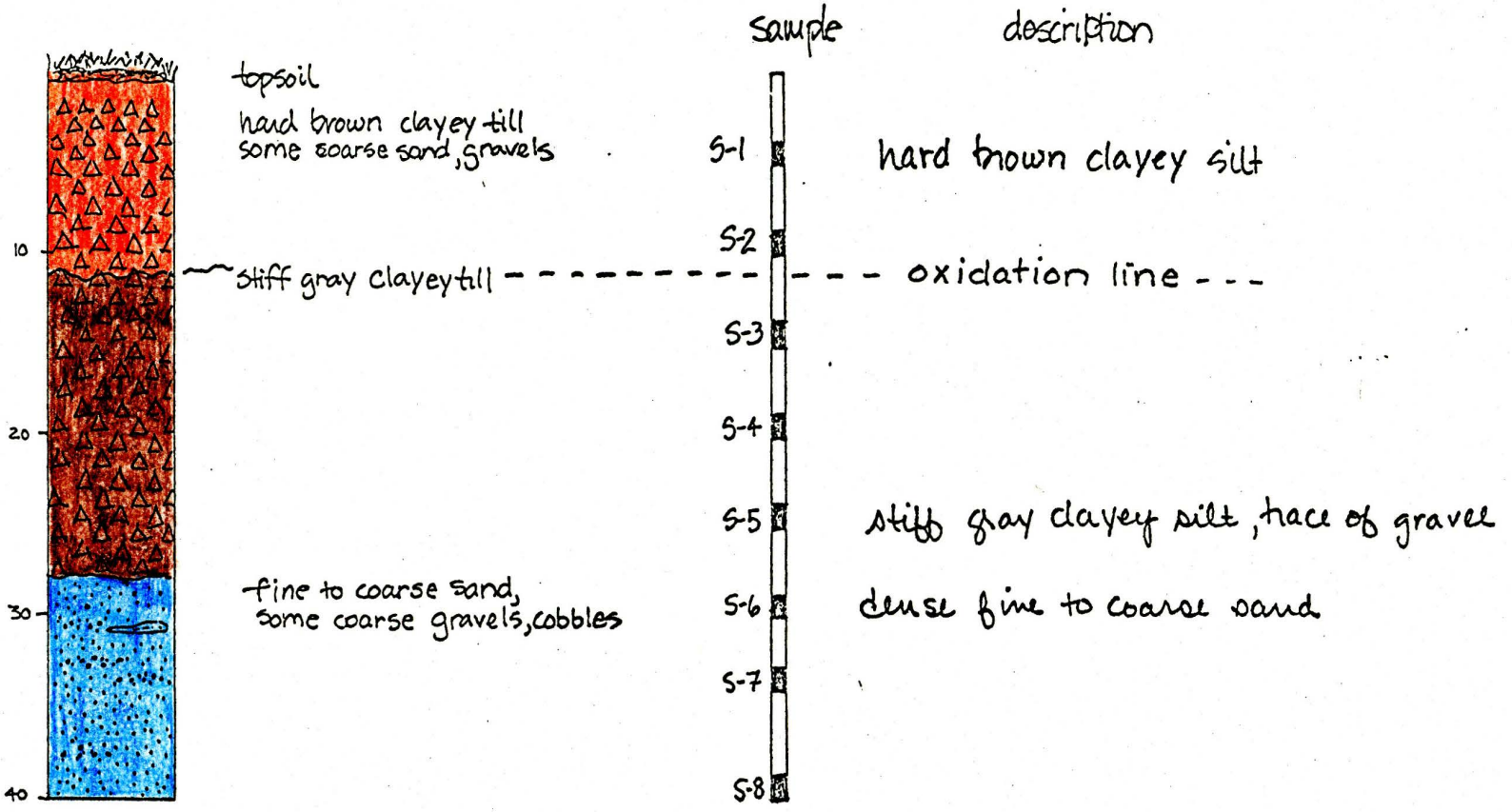
▮ sample length - 1½'

The depth of oxidation was reached at 11.5 feet. The underlying compact till contained numerous minor sand lenses, attaining thicknesses of a few centimeters. At a depth of 51 feet, the sand and gravel unit was reached. It extended to bedrock and measured 17 feet in thickness.

Borehole #3 began at the elevation of 760.5 feet and extended 40 feet (fig. 10). At a depth of 12 feet, the underlying till was gray, reflecting the lack of oxidation beyond this depth. The sand and gravel unit was reached at a depth of 28 feet.

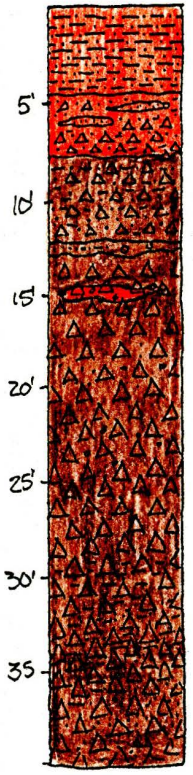
Borehole #4 extended 40 feet, beginning at the elevation of 769 feet (fig. 11). The oxidized zone was contained in the uppermost 8 feet. Within the borehole, an oxidized sand and silt layer was reached at a depth of 15 feet. This lens contained minor gravels. There was no further evidence of oxidation from subaerial exposure in any of the other 3 boreholes at this depth. Borehole #4 did not reach the sand and gravel unit.

Stratigraphic sections are color coded reflecting oxidation or reduction of the till or origin of the sand and gravel unit. The oxidized till zone is colored orange with the underlying unoxidized till colored brown. The basal sand and gravel unit is colored blue, indicative of its glaciofluvial origin. A description of the samples, correlated with their positions in the stratigraphic column is given to the left of




(fig 10) Stratigraphic column
borehole # 3

sample
length 1½'




oxidized, hard brown clayey silt, minor sand

oxidized clayey silty till, Fe, $CaCO_3$ stains, mottles

unoxidized.

| Samples | Descriptions |
|---|---|
| S-1 | hard brown clayey silt (AB horiz) some sands. |
| S-2 | oxidized, some $CaCO_3$, Fe stains |
| | --- oxidation line - - - - - |
| S-3 | 90% unoxidized. hard compact silty clayey till |
| S-4 | oxidized w/ gravel, sand, silt lenses, brown color. |
| S-5 | gray compact till; silt/clay w/some gravels. |
| S-6 | some well sorted fine-med gravels, unoxidized sand lenses - 3" thickness. |
| S-7 | unoxidized - clayey silt, hard till - wet sand layers 40% core. |
| S-8 | unoxidized silty/clayey till fine gravel coarse sand lags - basal |
| S-9 | unoxidized. |

(fig 11.) Stratigraphic column borehole #4

■ core sample length 1½'

the stratigraphic section. Descriptions of materials and drilling rate samples are given by the operators of the drilling rigs and these field logs are found in the Appendix.

## SOIL SURVEY

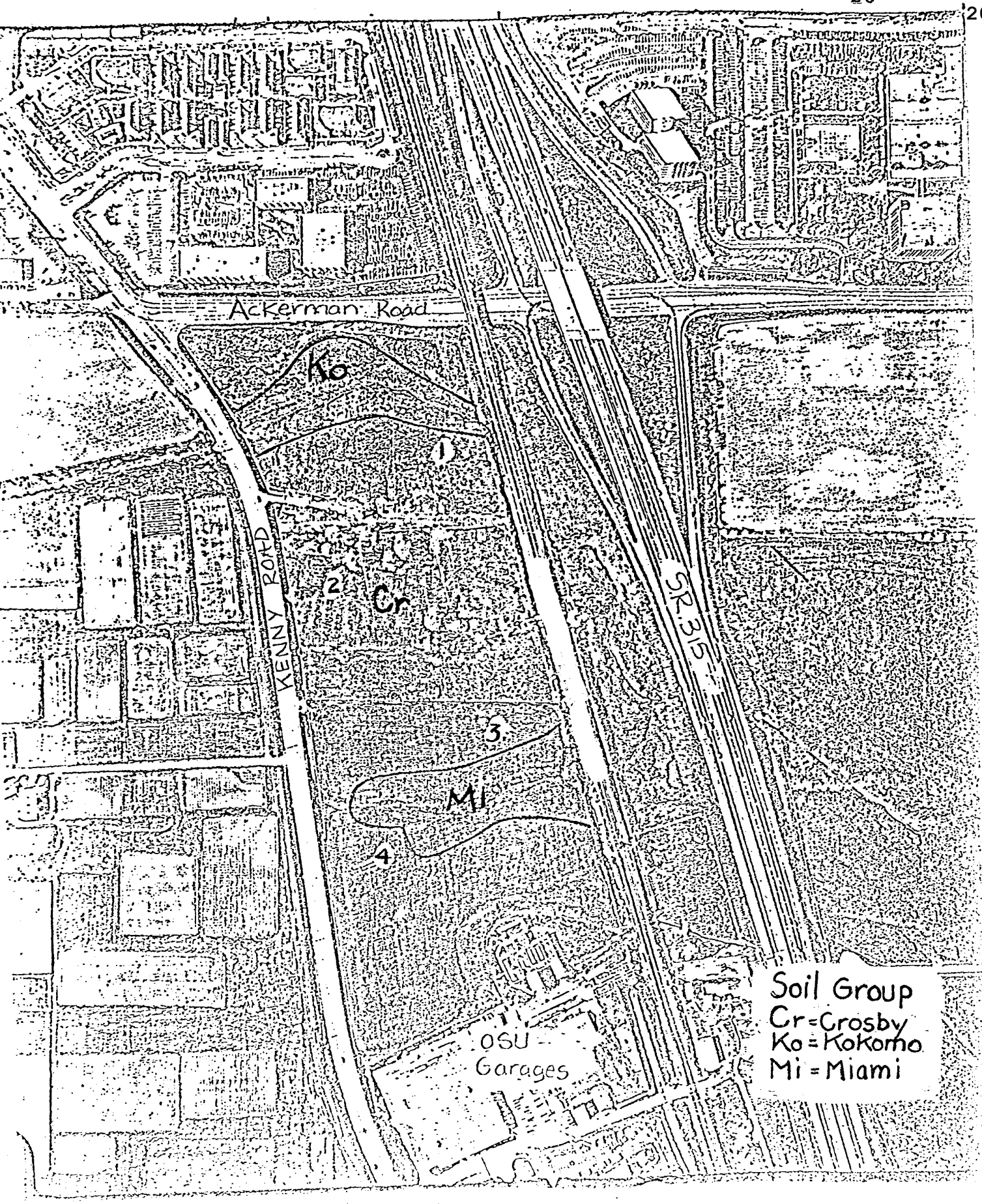
Soils at the site are developed in the underlying glacial tills. The three solids that developed belong to the Miami-Celina-Crosby-Kokomo Association of Ohio (McLoda, 1980). These soils have a "loamy" texture and have a high lime content. These soils usually require additional drainage (fig. 12).

The four boreholes were augered in the Crosby soil group that covers most at the site. This soil group develops on the higher convex portions of the landscapes where slopes of 2-6° are found. This soil is commonly situated between Celina soils on knolls and Kokomo soils in depressions, as seen at the site.

The Kokomo soil lies to the north at the site along the open ditch. Kokomo soils develop on nearly level land, with slopes of less than 2 degrees.

A minor soil in the Association, the Miami, has formed along the southern open drainage gully that traverses the site.

Both the Crosby and Kokomo soils, which comprise the bulk of soils at the site, are poorly drained. These soils have a water table that rises to within 1 to 2 feet of the surface in the spring and summer months. This can result in ponding at the site.




(fig 12) Soil Map

# REFERENCES

Goldthwait, R.P., 1958. Character and distribution of the glacial and alluvial deposits in The ground water resources of Franklin County, Ohio: Ohio Division of Water, Bulletin 30, 97p.

McLoda, N.A., and Parkinson, R.J., 1980. Soil survey of Franklin County, Ohio: USDA Soil Conservation Service, U.S.G.P.O., 188p.

Schmidt, J.J., 1958, The ground water resources of Franklin County, Ohio: Ohio Division of Water, Bulletin 30, 97p.

Stout, W., Ver Steeg, K., and Lamb, G.F., 1943. Geology of water in Ohio: Ohio Geol. Survey, 4th Ser. Bulletin 44.

# APPENDIX

## DRILLER'S LOGS

FORM F-5 JOB

Bus 276 2195
Res 262-2350

@ Ackerman Rd.

Columbus Test Boring Co. PROJECT: Kenny Rd. OSU. FIELD LOG OF BORING No. 1

LOCATION As Staked SOILS TECHNICIAN: DRILLER: R C Deweyt

DRILL RIG: Mobil B-40-H DATE: 8-3-84

ELEVATION 766 DATE STARTED: 8-2-84 FINISHED: 8-3-84 DEPTH: 29' WATER LEVEL READINGS 30.5 -AFTER 24 Hrs.

| SAMPLE ATTEMPTED | | | | SAMPLE PRESERVED | | | | Rec. | STRATUM | | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FROM | TO | SAMPLER | EFFORT | NO. | FROM | TO | TYPE | % | FROM | TO | |
| 3.5 | 5.0 | S | 7/9/11 | 1 | | 5.0 | J | 100% | 0.0 | 0.6 | Topsoil |
| 8.5 | 10.0 | S | 5/8/14 | 2 | | 10' | J | 100% | 0.6 | 11.0' | Hard Ben. Clayey Silt, some Fine To Coarse Sand, Trace of Fine Gravel. |
| 13.5 | 15.0 | S | 6/8/10 | 3 | | 15 | J | 100% | | | |
| 18.5 | 20 | S | 4/10/11 | 4 | | 20 | J | 100% | 11.0 | 31.5 | Stiff Gray Clayey Silt, some Fine To Coarse Sand, Trace of Fine Gravel Trace of Coarse Gravel. |
| 23.5 | 25 | S | 7/8/9 | 5 | | 25' | J | 100% | | | Heavy Water Flow @ 31.5 |
| 28.5 | 30' | S | 5/5/8 | 6 | | 30 | J | 100% | 31.5 | 44.0' | Gray Fine To Coarse Sand, some Fine Gravel some Gray Clayey Silt. Med Dense- |
| 33.5 | 35.0 | S | 9/11/18 | 7 | | 35 | J | 100% | | | |
| 38.5 | 40 | S | 6/8/15 | 8 | | 40 | J | 100% | | | Depth - 40' |

ST = SHELBY TUBE SAMPLER, 3" O.D.

FORM 1-5 JOB:

13 5
1 2

Bus. 276-2195
Res. 262-2350

Columbus Test Boring Co. PROJECT: 0-54. Kenny Rd. FIELD LOG OF BORING No. 2

LOCATION: As Staked SOILS TECHNICIAN: DRILLER: R.C. Orcutt

DRILL RIG: Mob. L B40-H DATE: 8-6-84

ELEVATION: 769 DATE STARTED: 8-3-84 FINISHED: 8-6-84 DEPTH: 15.7' 15.7 - AFTER 24 Hrs

WATER LEVEL READINGS

| SAMPLE ATTEMPTED FROM | TO | SAMPLER | EFFORT | SAMPLE PRESERVED NO. | FROM | TO | TYPE | REC. | STRATUM FROM | TO | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.5 | 5.0 | S | 6/10/12 | 1 | | 5.0 | J | 10-2% | 0.0 | 0.5 | Topsoil. |
| 8.5 | 10' | S | 6/11/15 | 2 | | 10 | J | 100% | 0.5 | 11.5 | Hard Brn. Clayey Silt, some Fine to Coarse Sand Trace of Fine Gravel. |
| 13.5 | 15 | S | 4/7/15 | 3 | | 15 | J | 100% | | | Water Seepage @ 10' |
| 18.5 | 20' | S | 6/16/20 | 4 | | 20 | J | 100% | 11.5 | 37' | Hard Gray Clayey Silt some Fine to Coarse Sand Trace of Fine Gravel. |
| 23.5 | 25 | S | 8/18/20 | 5 | | 25 | J | 100% | 37.0 | 49.5 | Stiff to Hard Gray Clayey Silt, with a Lense of Wet Sand |
| 28.5 | 30 | S | 9/24/20 | 6 | | 30' | J | 100% | | | Drilled to 30' with Auger Changed to Rotary with Mud @ 30 |
| 33.5 | 35' | S | 24/33/43 | 7 | | 35' | J | 100% | 49.5 | 65.5 | Dense Fine Gray Sand, Trace of Gray Clay Silt. |
| 38.5 | 40 | S | 9/9/16 | 8 | | 40 | J | 80% | 65.5 | 68.9 | Fine To Coarse Gravel, with Fine Sand, Trace of Cobbles. |
| 43.5 | 45 | S | 25/50/3" | 9 | | 45 | | 80% | | | Refusal @ 68.9 - Possible Bedrock. |
| 48.5 | 50.0 | S | 10/24/50/3" | 10 | | 49.8 | | 80% | | | |
| 53.5 | 55' | S | 23-33/41 | 11 | | 55 | | 60% | | | |
| 58.5 | 60 | S | 17/19/10 | 12 | | 60 | | 60% | | | |
| 63.5 | 65 | S | 29/18/20 | 13 | | | | | | | |
| 68.5 | 68.9 | S | 50 | 14 | | 68.9 | | 50% | | | |

ST = SHELBY TUBE SAMPLER, 3" O.D.

HAND PENETROMETER READING IN tsf

PLATE

24

JOB:

Bus. 276-2195
Res: 262-2350

**Columbus Test Boring Co.** PROJECT: O.S.U. - Kenny Rd. FIELD LOG OF BORING No. 3

LOCATION: As Directed SOILS TECHNICIAN: DRILLER: R.C. Orcutt

DRILL RIG: M-706.L B 40-H DATE: 8-2-84

ELEVATION: 760.5 DATE STARTED: 8-2-84 FINISHED: 8-2-84 DEPTH: 36.3

WATER LEVEL READINGS: 36.4 AFTER 24 HRS

| SAMPLE ATTEMPTED FROM | TO | SAMPLER | EFFORT | SAMPLE PRESERVED NO. | FROM | TO | TYPE | Rec. | STRATUM FROM | TO | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3.5 | 5.0 | S | 2/4/9/13 | 1 | | 5.0 | J | 60% | 0.0 | 0.4 | TOPSOIL |
| 8.5 | 10.0 | S | 9/10/12 | 2 | | 10.0 | J | 140% | 0.4 | 12' | HARD BROWN CLAYEY SILT, WITH FINE TO COARSE SAND, SOME FINE TO COARSE GRAVEL. |
| 13.5 | 15.0' | S | 6/7/8 | 3 | | 15' | J | 60% | | | |
| 18.5 | 20.0 | S | 4/6/7 | 4 | | 20' | J | 50% | 12.0 | 22' | STIFF GRAY CLAYEY SILT, SOME FINE TO COARSE SAND, TRACE OF FINE GRAVEL. |
| 23.5 | 25.0 | S | 13/16/15 | 5 | | 25' | J | 70% | 22.0 | 28' | DENSE BROWN FINE TO COARSE SAND, SOME FINE GRAVEL. |
| 28.5 | 30' | S | 5/10/15 | 6 | | 30' | J | 90% | | | |
| 33.5 | 35 | S | 32/50/3 | 7 | | 34.3 | J | 10% | 28.0 | 32.0 | MED. DENSE BROWN FINE TO COARSE SAND, SOME FINE GRAVEL, SOME BROWN CLAYEY SILT. |
| 38.5 | 40 | S | 10/14/14 | 8 | | 40' | J | 100% | 32.0 | 38' | DENSE BROWN FINE TO COARSE SAND, SOME FINE GRAVEL, SOME COARSE GRAVEL & COBBLES, TRACE OF BOULDERS. WATER @ 36.3' |
| | | | | | | | | | 38.0 | 40.0 | MED. DENSE GRAY BROWN FINE TO COARSE SAND, TRACE OF FINE GRAVEL, SOME CLAYEY SILT. |
| | | | | | | | | | | | DEPTH - 40' |

ST = SHELBY TUBE SAMPLER, 3" O.D.

FORM: F-5 JOB

Bus: 276-2195
Res.: 262-2350

**Columbus Test Boring Co.** PROJECT: 0-54 Kenny Rd. FIELD LOG OF BORING No. 4

LOCATION: As Directed SOILS TECHNICIAN: _____ DRILLER: R.C. Orcutt

DRILL RIG: Mobil B40-H DATE: 8-1-84

ELEVATION: 769.0 DATE STARTED: 8-1-84 FINISHED: 8-1-84

WATER LEVEL READINGS DEPTH: 21.4 17.9 AFTER 24 Hrs.

| SAMPLE ATTEMPTED | | | | SAMPLE PRESERVED | | | | | STRATUM | | DESCRIPTION |
|---|---|---|---|---|---|---|---|---|---|---|---|
| FROM | TO | SAMPLER | EFFORT | NO. | FROM | TO | TYPE | % | FROM | TO | |
| 2.0 | 3.5 | S | 5/7/5 | 1 | | 3.5 | J | 80% | 0.0 | 0.2 | Topsoil |
| 5.0 | 6.5 | S | 4/3/3 | 2 | | 6.5 | J | 100% | 0.2 | 4.5 | Hard Brown Clayey Silt, some Fine To Coarse Sand, some Fine Gravel. |
| 8.5 | 10.0 | S | 6/10/14 | 3 | | 10.0 | J | 100% | | | |
| 13.5 | 15.0 | S | 10/12/14 | 4 | | 15.0 | J | 100% | 4.5 | 13.2 | St. FF- Brown Clayey Silt, some Fine To Coarse Sand, some Fine Gravel. |
| 18.5 | 20.0 | S | 10/13/8 | 5 | | 20.0 | J | 100% | 13.2 | 13.7 | Brown Fine To Coarse Sand, some Clayey Silt Med. Dense - Wet. |
| 22.5 | 25.0 | S | 14/23 | 6 | | 25 | J | 100% | | | |
| 28.5 | 30.0 | S | 15/21/27 | 7 | | 30 | J | 100% | 13.7 | 23.5 | Hard Gray Clayey Silt, some Fine To Coarse Sand, Trace of Fine Gravel. |
| 33.5 | 35.0 | S | 21/24/26 | 8 | | 35 | J | 75% | 23.5 | 40 | Hard Gray Clayey Silt, with wet Lenses of Fine Sand. |
| 38.5 | 40' | S | 18/27/40 | 9 | | 40 | J | 75% | | | |
| | | | | | | | | | | | Total Depth - 40' |

ST = SHELBY TUBE SAMPLER, 3" O.D.